

# **Butterflies of Wyoming National Park Service Units**

**Devils Tower National Monument, Crook County**

**Fort Laramie National Historical Park, Goshen County**

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## Introduction

A small contract was issued in early 2004 to increase the knowledge about the butterfly faunas of Devils Tower National Monument, Crook County, Wyoming and Fort Laramie National Historical Site, Goshen County, Wyoming. It was agreed that three trips would be taken to assess the butterflies of Fort Laramie and that two visits would be made to Devils Tower, Crook County, Wyoming. A previous survey of the butterflies of Devils Tower National Monument was conducted between 1983 and 1985 (Ferris, 1986). Many of the specimens on which the Ferris report was based were found at the National Museum of Natural History, Washington, D.C. In this report we assess the butterflies that we found in 2004 as well as those from the earlier survey. We use the current species concepts used for North American butterflies (Opler and Warren, 2004) as well as some unpublished research to assess some elements of the faunas (Opler, unpublished data).

## Devils Tower National Monument, Crook County

We made visits to the monument on May 28, 2004 (Opler and Stanford) and on August 17, 2004 (Garhart). In the species accounts below, we give the current latin name (Opler and Warren, 2004), the accepted common name (Opler, 1999), and the localities and collection dates from our survey. We have included not only the butterflies found on our survey but those found on the earlier survey.

Fifty-nine butterfly species were found during the 1983-85 survey (Ferris, 1986). During our two one-day visits, we found 40 species, 8 of which had not been found in the earlier Devils Tower survey. Seven of these are resident on the monument and several are common elements of the native fauna. In particular, we feel that *Euphydryas anicia bernadetta* and *Hesperia juba* are common and widespread on the monument. Two species, the Southern Dogface (*Zerene cesonia*), a stray or temporary resident, and the undescribed member of the *Plebejus acmon* Complex, were new to Crook County.

One hundred butterfly species are reported for Crook County (USGS, 2004), although two species (*Papilio rutulus* and *Amblyscirtes oslari*) from the earlier survey (Ferris, 1986) are not included. Thus, the correct species number for Crook County should be 104 species. With more intensive survey of the butterflies of the monument, it might be expected that the cumulative species number might rise to 90.

A number of butterflies reported from the earlier survey (Ferris, 1986) should receive some comments. Since taxonomic knowledge of butterflies has advanced since the earlier report some of the reported butterflies are now considered to belong to different species (Opler & Warren, 2004).

1. *Pterourus glaucus canadensis* has been shown to be a distinct species *Papilio canadensis*.

2. *Icaricia acmon lutzii* is of uncertain identity. Specimens may be located either in the monument collection or in the University of Wyoming collection. *Plebejus acmon* does not occur in Wyoming or most adjacent states, and the biological entity described as *lutzii* feeds on *Eriogonum heracleoides*, which does not occur in the monument. It is possible that this butterfly is the same as that found on *Eriogonum pauciflorum* or may be a population near *lutzii* whose caterpillars feed on *Eriogonum umbellatum*. Examination of the earlier specimens or further survey of this group will be necessary.
3. *Celastrina argiolus cinerea* specimens from the earlier survey have been examined and prove to be *Celastrina lucia*, the Northern Azure. *Celastrina argiolus* is now thought not to occur in North America and the subspecies *cinerea* is found in the Southwest.
4. *Mitoura siva siva* is now referred to *Callophrys gryneus siva*.
5. *Speyeria atlantis lurana* is now considered as *Speyeria hesperis lurana*. *Speyeria atlantis pahaspa* has been described from the Black Hills but is not yet documented for Crook County.
6. *Polygonia zephyrus* is now treated as *Polygonia gracilis zephyrus*. It is now known that *zephyrus* is a subspecies of the more eastern *gracilis*.
7. *Hesperia comma* is now treated as three species in North America. The species found at Devils Tower is *Hesperia colorado*. Several individuals from the earlier survey were examined and are this species.

The most significant butterfly population found during our survey was the undescribed member of the *Plebejus acmon* Complex. These butterflies were limited to an association with *Eriogonum pauciflorum* on the red rock formation. A current study (Opler, unpublished data) will clarify the status of this butterfly. The likely outcome is that it will be described as a new species of North American butterfly, one of a number of undescribed species in this complex.

We feel that the Devils Tower unit is generally in good condition if one compares its status with the surrounding landscapes. The habitats do show some effects of long-term historical environmental change which likely have had a negative effect on butterfly populations. The primary among these is the impact of exotic alien plants that appear to displace native vegetation, including natural butterfly host plants. The invasion of the grasslands by smooth brome (*Bromus inermis*) is perhaps the most negative aspect on the monument's fauna. If this grass were to be removed and replaced with native grasses and forbs, a significant improvement in butterfly populations might be expected; however it also might just lead to increased weediness—a negative result. The periodically flooded channel of the Belle Fourche River within the monument is heavily weedy—dominated by such exotics as *Euphorbia esula*. Our guess is that this plant can only be controlled by biological agents such as *Hyles euphorbiae*.

Some exotic plants actually benefit native and non-native butterflies by either providing nectar sources or larval hosts. These include the nectar provided by exotic

thistles and alfalfa. Alfalfa also serves as one host for several of the butterflies found in the monument.

Foot traffic could be a potentially detrimental impact on populations of sulphur-flower (*Eriogonum umbellatum*), an important butterfly larval host and nectar source found along the base of the basaltic portion on the tower formation. This plant should be monitored to see if such negative effects are important.

Most important and regionally unique is the undescribed *Plebejus* species which uses fewflower (*Eriogonum pauciflorum*). Little is known of this butterfly's range and habitat needs. Great care should be taken to conserve its habitat within the monument.

## Species list

All species listed below are believed to be native to Devils Tower except those annotated as introduced exotics or those which are annual colonists from more southerly residential populations.

### **Papilionidae [Swallowtails]**

*Papilio multicaudata* (W.F. Kirby) [Two-tailed Swallowtail]: Natural springs, May 28, 2004, August 17, 2004.

*Papilio canadensis* (Rothschild and Jordan) [Canadian Tiger Swallowtail]:

*Papilio rutulus* (Lucas) [Western Tiger Swallowtail]:

### **Pieridae [Whites and Sulphurs]**

*Pieris rapae* (Linnaeus) [Cabbage White]: natural spring run, May 28, 2004. Introduced to North America in 1800's. Now established from coast to coast.

*Pontia sisymbrii nordini* K. Johnson [Spring White]:

*Pontia protodice* (Boisduval & LeConte) [Checkered White]: natural spring run, May 28, 2004; Joyner Ridge, August 17, 2004. Seasonal colonist.

*Euchloe olympia* (W.H. Edwards) [Olympia Marble]: west ridge, May 28, 2004.

*Euchloe ausonides palaeorios* K. Johnson [Large Marble]: park road, May 28, 2004.

*Colias alexandra alexandra* (W.H. Edwards) [Queen Alexandra Sulphur]

*Colias philodice eriphyle* W.H. Edwards [Clouded Sulphur]: several sites, May 28, 2004; Belle Fourche River, August 17, 2004.

*Colias eurytheme* Boisduval [Alfalfa Sulphur]: west ridge, May 28, 2004. Seasonal colonist.

\**Zerene cesonia* (Stoll) [Southern Dogface]: west ridge, May 28, 2004. Seasonal colonist.

### **Lycaenidae [Gossamer Wings]**

*Lycaena helloides* (Boisduval) [Purplish Copper]:

*Satyrrium liparops aliparops* (Michener & dos Passos) [Striped Hairstreak]:

*Satyrrium calanus* near *falacer* (Godart) [Banded Hairstreak]:

*Satyrrium titus* (Fabricius) [Coral Hairstreak]:

*Callophrys eryphon* (Boisduval) [Western Pine Elfin]: spring run and nearby sites, May 28, 2004.

*Callophrys gryneus siva* (W.H. Edwards) [Juniper Hairstreak]: spring run, May 28, 2004.

*Strymon melinus franki* Field [Gray Hairstreak]: along Belle Fourche River, August 17, 2004,

*Celastrina lucia* (W. Kirby) [Northern Azure]

\**Glaucopsyche lygdamus* (Doubleday) [Silvery Blue]: spring run, May 28, 2004.

*Plebejus melissa* (W.H. Edwards) [Melissa Blue]: many sites, May 28, 2004; along Belle Fourche River, August 17, 2004.

\**Plebejus icarioides* (Boisduval) [Boisduval Blue]: spring run, May 28, 2004.

\**Plebejus acmon* Complex, undescribed species [no common name]: Red Beds Trail above LaFourche River, May 28, 2004. This butterfly was directly associated with *Eriogonum pauciflorum*, almost certainly its caterpillar host. Evidence from Fall River County, South Dakota—the only other site for this species—indicates it has two flight periods.

{*?Plebejus [lupini] lutzi* dos Passos [no common name]}: identity and status in Monument uncertain.

### **Nymphalidae [Brushfoot Butterflies]**

*Danaus plexippus* (L.) [Monarch]: natural springs, August 9, 2004. Seasonal colonist.

*Euptoieta claudia* (Cramer) [Variegated Fritillary]: west ridge, May 28, 2004. Seasonal colonist.

*Speyeria edwardsii* (Reakirt) [Edwards' Fritillary]: natural springs and Joyner Ridge trail, August 9, 2004

*Speyeria coronis* near *halycone* (W.H. Edward) [Coronis Fritillary]

*Speyeria callippe meadii* (W.H. Edward) [Callippe Fritillary]

*Speyeria hesperis lurana* dos Passos & Grey [Northwestern Fritillary]: Joyner Ridge trail and natural springs, August 9, 2004.

*Chlosyne gorgone carlota* (Reakirt) [Gorgone Checkerspot]: several sites, May 28, 2004.

*Phyciodes tharos* (Drury) [Pearl Crescent]: spring run, May 28, 2004.

\**Phyciodes pulchellus* (Boisduval) [Field Crescent]: spring run, May 28, 2004; along Belle Fourche River, August 9, 2004.

\**Euphydryas anicia bernadetta* (Leussler) [Variable Checkerspot]: spring run, west ridge, May 28, 2004.

*Polygonia progne* (Cramer) [Gray Comma].

*Polygonia gracilis zephyrus* (W.H. Edwards) [Hoary Comma].

*Polygonia satyrus* (W.H. Edwards) [Satyr Comma]

*Nymphalis antiopa* (Linnaeus) [Mourning Cloak]: along Belle Fourche River, May 28, 2004.

\**Nymphalis milberti* (Godart) [Milbert's Tortoiseshell]: along Belle Fourche River, May 28, 2004.

*Vanessa cardui* (Linnaeus) [Painted Lady]: along Belle Fourche River, May 28, 2004; August 9, 2004.

*Vanessa atalanta rubria* (Fruhstorfer) [Red Admiral]. Seasonal colonist.

*Limenitis weidemeyerii oberfoelli* Puckering and Post [Weidemeyer's Admiral]

*Coenonympha tullia benjamini* x *inornata* blend [Common Ringlet]: west ridge, May 28, 2004. Population is intermediate and variable between two taxa.

*Cercyonis pegala olympus* (W.H. Edwards) [Common Wood-Nymph]: Joyner Ridge trail and natural springs, August 9, 2004.

*Cercyonis meadii* (W.H. Edwards) [Mead's Wood-Nymph].

*Cercyonis oetus charon* (W.H. Edwards) [Dark Wood-Nymph].

*Oeneis uhleri uhleri* (Reakirt) [Uhler's Arctic]: west ridge, May 28, 2004;

### **Hesperiidae [Skippers]**

*Epargyreus clarus clarus* (Cramer) [Silver-spotted Skipper]: spring run, May 28, 2004.

*Erynnis juvenalis juvenalis* (Fabricius) [Juvenal's Duskywing]: spring run, May 28, 2004.

*Pyrgus communis* (Grote) [Common Checkered-Skipper]: spring run, May 28, 2004;  
Joyner Ridge trail and natural springs, August 9, 2004.

*Pholisora catullus* (Fabricius) [Common Sootywing]: spring run, May 28, 2004. Possible colonist or resident.

*Oarisma garita* (Reakirt) [Garita Skipperling]:

*Hesperia colorado* (Scudder) [Western Branded-Skipper]: natural springs, August 9, 2004.

*Hesperia leonardus pawnee* Dodge [Pawnee Branded-Skipper]: natural springs, August 9, 2004.

\**Hesperia juba* (Scudder) [Juba Skipper]: several sites. Especially common on red rock formation along red beds trail, May 28, 2004.

*Polites origines origines* (Fabricius) [Cross-line Skipper]:

*Atrytone arogos iowa* (Boisduval and LeConte) [Arogos Skipper]:

*Anatrytone logan lagus* (W.H. Edwards) [Delaware Skipper]:

*Poanes taxiles taxiles* (W.H. Edwards) [Taxiles Skipper]: spring run, May 28, 2004.

*Euphyes vestris metacomet* (Harris) [Dun Skipper]: spring run, May 28, 2004.

*Atrytonopsis hianna* (Scudder) [Dusted Skipper]: west ridge, May 28, 2004.

*Amblyscirtes oslari* (Skinner) [Oslar's Roadside-Skipper]

*Amblyscirtes vialis* (W.H. Edwards) [Common Roadside-Skipper]: spring run, May 28, 2004.

## **Fort Laramie National Historic Site, Goshen County**

We made visits to the monument on May 26, 2004 (Opler and Stanford), July 5 (Garhart), and on August 9, 2004 (Garhart). May 26, our only spring date, was extremely windy and finding butterflies was a difficult matter. There had been no previous survey of Fort Laramie and three visits is not sufficient to completely inventory the fauna.

We found 24 species of butterflies on the Fort and Bedlam Ruts. Of these, eight species were found only at Bedlam Ruts, leaving only 16 species found within the confines of Fort Laramie. No butterfly found was rare or sensitive, but one species, the Northwestern Fritillary (*Speyeria hesperis lurana*) had not been found previously in the county.

Since 83 species have reported for Goshen County (U.S.G.S., 2004), we expect that with sampling on more dates that the number of butterfly species found at Fort Laramie and Bedlam Ruts would increase significantly—probably in the neighborhood of 65 species.

We were asked to include the Bedlam Ruts (BLM) in our survey. Bedlam Ruts has good native prairie habitat as well as some Ponderosa Pine-Juniper woodland, while most of Fort Laramie consisted of closely moved flatland with an extremely depauperate butterfly assemblage. The fringing riparian woodlands and some marshy areas hold most of the butterfly numbers and diversity that was observed at the Fort.

Butterfly numbers and species richness on the Fort could be increased significantly by allowing as much acreage as possible to lay to allow vegetation to increase in height. Increased diversity would be obtained by planting a few small gardens of flowering plants that are attractive to butterflies.

#### **Papilionidae [Swallowtails]**

*Papilio multicaudatus* (W.F. Kirby) [Two-tailed Swallowtail]: Bedlam Ruts, July 5, 2004.

#### **Pieridae [Whites and Sulphurs]**

*Pieris rapae* (Linnaeus) [Cabbage White]: Confluence Trail, July 5, 2004 (several); Confluence Trail and Bedlam Ruts, August 9, 2004 (several).

*Euchloe olympia* (W.H. Edwards) [Olympia Marble]: Bedlam Ruts [BLM], May 26, 2004 (4-5 seen).

*Colias eurytheme* (Boisduval) [Alfalfa Sulphur]: Confluence Trail, May 26, 2004 (1 female seen); Confluence Trail, Picnic Area, and Bedlam Ruts, August 9, 2005.

*Colias philodice* (Godart) [Clouded Sulphur]: Confluence Trail, May 26, 2004 (1 female collected); Museum access road, July 5, 2004.



*Zerene cesonia* (Stoll) [Southern Dogface]: Bedlam Ruts [BLM], May 26, 2004 (1 female seen)

### **Lycaenidae [Gossamer Wings]**

*Plebejus melissa* (W.H. Edwards) [Melissa Blue]: Confluence Trail, July 5, 2004

### **Nymphalidae [Brushfoot Butterflies]**

*Euptoieta claudia* (Cramer) [Variegated Fritillary]: Bedlam Ruts [BLM], May 26, 2004 (1 seen); Bedlam Ruts [BLM], August 9, 2004.

*Speyeria edwardsii* (Reakirt) [Edwards' Fritillary]: Bedlam Ruts [BLM], May 26, 2004 (1 collected, 5-6 seen).

*Speyeria hesperis lurana* dos Passos & Grey [Northwestern Fritillary]: Bedlam Ruts [BLM], August 9, 2004 (worn).

*Chlosyne gorgone carlota* (Reakirt) [Gorgone Checkerspot]: Bedlam Ruts [BLM], May 26, 2004 (1 seen), Confluence Trail, May 26, 2004 (1 collected, 3 others seen).

*Phyciodes tharos* (Drury) [Pearl Crescent]: Confluence Trail, May 26, 2004 (2 seen).

*Phyciodes pulchellus* (Boisduval) [Field Crescent]: Confluence Trail, August 9, 2004.

*Danaus plexippus* (Linnaeus) [Monarch]: Picnic Area, August 9, 2004.

*Vanessa atalanta rubria* (Fruhstorfer) [Red Admiral]: Bedlam Ruts [BLM], May 26, 2004 (1 seen), Confluence Trail, May 26, 2004 (5 seen); Confluence Trail, July 5, 2005; Picnic Area, August 9, 2004.

*Vanessa cardui* (Linnaeus) [Painted Lady]: Bedlam Ruts [BLM], May 26, 2004 (1 seen); Museum access road and Bedlam Ruts, July 5, 2004; Museum access road and Picnic Area, August 9, 2004.

*Nymphalis antiopa* (Linnaeus) [Mourning Cloak]: Confluence Trail, May 26, 2004 (2 seen, 03 emerged).

*Limenitis archippus* (Cramer) [Viceroy]: Confluence Trail [July 5, 2005]  
Satyrinae.

*Cercyonis pegala olympus* (W.H. Edwards) [Common Wood-Nymph]: Confluence Trail and Bedlam Ruts, July 5, 2004.

### **Hesperiidae [Skippers]**

*Epargyreus clarus* (Cramer) [Silver-spotted Skipper]: Bedlam Ruts [BLM], May 26, 2004 (1 seen).

*Pholisora catullus* (Fabricius) [Common Sootywing]: Confluence Trail, May 26, 2004 (1 collected, 3 others seen).

*Pyrgus communis* (Grote) [Common Checkered Skipper]: Confluence Trail, May 26, 2004 (1 seen); cemetery, July 5, 2004; Confluence Trail, museum access road, and Bedlam Ruts, August 9, 2004.

*Hesperia colorado* (Scudder) [Western Branded-Skipper]: Bedlam Ruts, July 5, 2004; Confluence Trail, August 9, 2004.

*Hesperia juba* (Scudder) [Juba Skipper]: Bedlam Ruts [BLM], May 26, 2004 (1 female collected).

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